

REMARKS/ARGUMENTS

Claim Rejections – 35 USC 103

Examiner has rejected Claims 1-3, 9-11, 14, 15, 19-21, 25-27 and 33-35 under 35 USC 103(a) as being anticipated by Reich and further in view of Coulter. In the rejection, Examiner notes that

Reich does not teach a storage rack for vertically storing a plurality of trays and further does not teach a storage gantry for vertical and horizontal movement of said plurality of trays between said storage rack and said at least one automated machine. ... Therefore,, Examiner cites Coulter. Coulter further shows a vertical and horizontal movement of plurality of trays (racks) between the input storage rack and the aspiration (at least one automated machine) station with use of elevator 20, platform 18 and belt 32 (combined forming a storage gantry to move physical object under program control) and further pushing the trays back to vertical storage rack from the aspiration station. ... Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify Reich's invention in view of Coulter

In response, Applicant has amended Claim 1 so that it now reads as follows:

An automated storage and retrieval device for trays holding subject matter, comprising:

A) a storage rack comprising a plurality of vertically aligned storage slots for vertically storing a plurality of trays,

B) at least one automated machine,

C) a storage gantry for vertical and horizontal movement of said plurality of trays between said storage rack and said at least one automated machine, said storage gantry being adopted to remove a tray from any one of said plurality of vertically aligned storage slots and to return a tray to any one of said plurality of vertically aligned storage slots, and

D) at least one computer system programmed to control said storage gantry. (emphasis added)

Coulter's Device Removes Tube Racks from Bottom of Stack Only

In Coulter, on the input side elevator 20 raises platform 18 up towards the bottom of the lowermost tube rack 28 in stack 12. Then, the lowermost tube rack 28 is removed from the stack and transported to conveyer belt 32. On the output side, conveyer belt 32

transports tube rack 28 to platform 24. Elevator 26 raises upward and tube rack 28 is placed at the lowermost spot in stack 14.

There are numerous problems with Coulter's device. For example, tube racks are sequentially conveyed from the input stack to the aspiration station one after the other. Then, sequentially they are conveyed to the output stack. Therefore, the location of an individual tube rack is constantly shifting and it is very difficult to know the location at a given moment of an individual tube rack. Also, Coulter's tube racks are only accessed via platforms 18 and 24 from the bottom of stacks 12 and 14, respectively. Therefore if it is desirable to access a tube rack that is located at the top of input stack 12, all tube racks below the topmost tube rack must first be conveyed through the system before the topmost tube rack can be retrieved. This is a significant waste of time.

In contrast, Applicant's storage gantry is much more efficient. Applicant's storage rack includes a plurality of vertically aligned storage slots. The storage gantry is capable of accessing directly any individual storage slot. Moreover, the storage gantry can remove a tray from any selected individual storage slot. The storage gantry can then take the tray to an automated machine for analysis. Then, when finished the storage gantry can automatically return the selected tray to the same storage slot within the storage rack from which the tray was removed. It is therefore very easy to know the location within the storage rack of an individual tray, because its position need not shift during operation of Applicant's device. Moreover, because the position of any other tray need not be disturbed, there is a tremendous time saving that occurs in comparison to the prior art.

Other Claim Rejections – 35 USC 103

Independent Claims 14, 25, 38, 39 and 40 are similarly limited as described above in reference to Claim 1 and should likewise be allowable. All other claims are dependent on claims that should now be allowable and therefore these claims should be allowable as well.

New Claims

Applicant has added new claims 42 and 43. These claims include limitations not disclosed in the prior art and should be allowable.

Conclusion

Thus, for all the reasons given above, this application, as the claims are presently limited, defines a novel, patentable, and truly valuable invention. Hence allowance of all outstanding claims in this application is respectfully submitted to be proper and is respectfully solicited.

Respectfully Submitted,



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